

TRAFFIC SPEED REPORT  
NO. 67

NOVEMBER 1959  
NO. 26

Joint  
Highway  
Research  
Project

by  
D.F. PETTY

PURDUE UNIVERSITY  
LAFAYETTE INDIANA



Progress Report

TRAFFIC SPEED REPORT NO. 67

TO: K. B. Woods, Director  
Joint Highway Research Project

November 19, 1959

FROM: H. L. Michael, Assistant Director  
Joint Highway Research Project

File: 8-3-3  
Project: C-36-10C

Attached is Traffic Speed Report No. 67 which has been prepared by Mr. Donald F. Petty, Research Assistant on our staff under the direction of Professor H. L. Michael.

This report presents the speed data and an analysis of these data collected during the summer of 1959. The project has conducted similar studies at the same locations semi-annually for the past twenty years.

Of particular interest in the results of this study is the 6.1 MPH increase in the average speed of heavy trucks on four-lane highways. This increase is probably due to the 5 MPH increase in the speed limit for such trucks on such highways.

Copies of this report will be distributed as usual to the Indiana State Police, the Indiana Office of Traffic Safety and the Bureau of Public Roads. The report is submitted for the record.

Respectfully submitted,

*H. L. Michael*  
H. L. Michael, Secretary

HLM:pg

Attachment

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Progress Report

TRAFFIC SPEED REPORT NO. 67

By

Donald F. Petty, Research Assistant

Joint Highway Research Project  
Project No: C-36-10C  
File No: 8-3-3

Purdue University  
Lafayette, Indiana

November 19, 1959

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## TRAFFIC SPEED REPORT NO. 67

This report covers spot speed observations made during July and August 1959. All observations were made of free moving vehicles on level tangent sections of rural highways. The locations of the speed stations were the same as for previous studies and are as follows:

1. U.S. 52-1.0 miles South of South junction of S.R. 28 (Dual Lanes)
2. U.S. 52-1.0 miles West of Klondike (Dual Lanes)
3. U.S. 52-2.2 miles Northwest of Templeton (2 Lane)
4. U.S. 31-7.2 miles North of Perrysburg (2 Lane)
5. S.R. 25-0.7 miles South of Americus (2 Lane)
6. U.S. 41-1.0 miles North of Boswell (2 Lane)

An Electromatic Radar Speed Meter was used to collect the data for this study. The meter was concealed as part of a rural mailbox and placed from two to three feet from the edge of the pavement. It was directed along the highway at a small angle with respect to the direction of traffic so that it was not necessary to make an angle correction to the readings.

The radar equipment used will not operate properly if the voltage varies more than minus 1/2 volt or plus 1 volt from the optimum twelve volts. The voltage was therefore checked periodically in the field and maintained within the desired range. Also, correct calibration was maintained by periodically checking it with a 60 mile per hour tuning fork.

The observers concealed themselves from traffic as much as local conditions permitted. A 150 foot cable was used between the meter reading unit and the pick-up unit. It is therefore believed that the speeds of the observed vehicles were not influenced by the observers or the equipment.



A summary of the results of this study, as well as of the last seven studies, is given in Table I. Indiana state law limits the speed of passenger cars and trucks under 5,000 pounds (GVW) to 65 miles per hour. The speed limit of trucks over 5,000 pounds (GVW) is 50 miles per hour on all highways except that on four-lane highways which have a median strip of at least twenty feet in width the speed limit is 55 miles per hour. This new speed limit for trucks has been in effect since about May 1959. However, very few speed limit signs have been posted in the state to reflect this change. It also is not known what percentage of the truck drivers know about this speed limit change.

Truck speeds are shown in the tables for three groups: light trucks, heavy trucks, and all trucks; also it is noted whether the road is 2 lane or 4 lane. All 4 lane observation stations were on highways with a median of greater than twenty feet. Since weights were not taken in this study, light trucks (less than 5,000 pounds) were considered to be only panel trucks and pick-up trucks. All other types of trucks were classified as heavy (over 5,000 pounds).

The passenger car data were also classified in three groups: Indiana, out-of-state, and all passenger cars. The classification was determined by observing the license plate on each passenger car after it had passed the station.

So that an easy comparison can be made between the results of the present study and the last previous study, the results from each speed station for both studies are tabulated in Tables II through VII. All speed observations for this study were taken at approximately the same locations as for the previous study.



Average and 85th percentile speeds were computed for each vehicle group from the sample of vehicles taken at each study site and some of the differences between average speeds thus computed and average speeds similarly computed for the last study (December-March 1959) are briefly discussed. The average speed for all passenger cars increased 0.2 miles per hour since the last study while the average speed for all trucks increased 1.6 miles per hour. Indiana passenger cars increased their average speed on two-lane highways by 0.1 miles per hour while their average on four-lane highways increased 0.2 miles per hour. Out-of-state passenger cars decreased on average speed by 2.4 miles per hour on two-lane highways while their average speed on four-lane highways decreased by 1.6 miles per hour.

The average speed for light trucks decreased 0.7 miles per hour on two-lane highways and 3.6 miles per hour on four-lane highways. Heavy trucks increased their average speed on two-lane highways by 1.2 miles per hour and 6.1 miles per hour on four-lane highways. This average speed increase for heavy trucks on four-lane highways is probably the effect of the new Indiana speed limit.

Trend information on average speeds and 85th percentile speeds for passenger cars and trucks is shown in Table I and Figures 7 and 8.



TABLE I

SUMMARY OF SPOT SPEED OBSERVATIONS  
ON INDIANA HIGHWAYS

(Free-Moving Vehicles on Level, Tangent Sections)

	Passenger Cars				Trucks		
	Ind Mean	Non-Ind Mean	All Mean	All 85 per	Light Mean	Heavy Mean	All Mean
Two-lane Highways							
Feb. '56	54.9	58.0	55.9	63.2	47.1	43.2	44.4
Aug. '56	55.0	56.3	55.5	63.4	50.6	45.5	46.6
May '57	55.6	59.1	56.9	64.0	50.2	44.8	46.1
Aug. '57	55.5	56.7	55.9	62.1	51.7	45.8	47.3
Aug. '58	54.3	56.3	55.0	61.7	53.0	46.3	47.6
Mar. '59	55.5	57.7	56.1	61.9	50.4	45.4	46.3
Aug. '59	55.6	55.3	55.9	63.2	49.7	46.7	48.0
Four-lane Highways							
Feb. '56	58.1	60.1	58.7	65.7	47.8	45.2	45.8
Aug. '56	57.4	58.8	58.2	66.8	49.6	46.0	47.4
May '57	59.9	63.6	61.0	69.0	52.2	46.0	47.9
Aug. '57	57.5	59.9	58.5	64.8	52.0	46.6	47.6
Aug. '58	58.0	59.6	58.7	65.0	54.3	49.0	50.0
Mar. '59	58.2	61.7	59.0	64.9	53.6	47.0	48.4
Aug. '59	58.4	60.1	59.1	64.5	50.0	53.1	49.5
All Highways							
Feb. '56	56.0	58.6	56.8	63.8	47.3	44.0	44.9
Aug. '56	55.7	57.3	56.4	64.5	50.2	45.6	46.9
May '57	57.2	60.3	58.3	66.0	50.9	45.2	46.6
Aug. '57	56.2	58.3	56.9	63.2	52.8	46.1	47.4
Aug. '58	55.7	57.9	56.5	63.1	53.4	47.5	48.7
Mar. '59	56.6	59.0	57.2	63.1	51.5	45.9	47.0
Aug. '59	56.5	58.4	57.4	63.5	50.6	47.8	48.6



TABLE. TT SPEED DATA

Station No. 1 - 1.0 Mile South of South Jet. S. E. 28 on U. S. 52

Surface 4 Lane Divided 24' Bituminous Concrete  
This Observation

Date Aug. 3, 1959  
Time 8:50 - 10:50 A.M.

Last Previous Observation (Speed Report No. 66)	Cloudy
Date	Feb. 25, 1959
Time	Mar. 4, 1959 2:00 - 4:15 P.M. 2:00 - 3:45 P.M.



TABLE III  
SPEED DATA

Station No. 2 = 1.0 Mile West of Klondike on U. S. 52

Surface 4 Lane Divided. 24<sup>1</sup> Portland Cement Concrete  
This Observation

Date July 10, 1959  
Time 2:45 P.M. - 5:10 P.M.

Weather Sunny  
Last Previous Observation (Speed Report No. 66 )

Date December 30, 1958  
Time 1:30 P.M. - 4:05 P.M.

DISSENGED CASE



TABLE IV

Station No. 3 - 2.0 Mile Northwest Termination on U. S. 52

Surface 2 Lane 221 Bituminous  
This Observation

Date July 17, 1959      Time 3:00 P.M. - 4:30 P.M.

Weather Cloudy  
Last Previous Observation (Speed Report No. 66)

Date January 8, 1959  
Time 3:45 - 4:30 P.M.

DISCENSES CARD

OBSERVATION	PASSENGER CARS						TRUCKS						BUSES	
	All		Indiana		Non-Indiana		All		5000 pounds or more		Less than 5000 pounds		All	
No. of Vehicles Obs.	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
Ave. Speed (m.p.h.)	378	222	99	149	123	207	69	26	7	181	62	—	—	—
Max. Speed (m.p.h.)	56.7	56.5	56.1	56.3	51.6	56.7	45.9	48.3	51.6	52.4	45.2	47.9	—	—
Min. Speed (m.p.h.)	—	—	—	—	—	—	59.7	84.1	76.8	100	57.4	82.3	—	—
Range	45 m.p.h.	85.6	86.0	84.6	82.8	87.2	88.6	20.3	47.8	42.3	85.7	17.1	43.5	—
Range	50 m.p.h.	63.4	63.1	59.5	59.6	697	65.9	4.8	7.2	30.7	42.9	1.1	3.2	—
Range	55 m.p.h.	31.2	35.6	26.2	38.4	38.9	33.3	2.4	1.4	19.2	0.0	0.0	1.6	—
Range	60 m.p.h.	10.1	10.8	7.4	11.1	14.1	10.6	1.5	0.0	11.5	0.0	0.0	0.0	—
Range	65 m.p.h.	2.4	4.1	0.9	4.0	4.7	4.1	0.0	0.0	0.0	0.0	0.0	0.0	—
Range	70 m.p.h.	0.3	0.5	0.4	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Range	75 m.p.h.	219	67	122	35	97	32	91	31	9	3	50	20	—
No. of Vehicles Obs.	54.4	56.3	54.1	56.5	54.8	56.0	43.5	48.7	46.6	51.0	44.0	48.5	—	—
Ave. Speed (m.p.h.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Max. Speed (m.p.h.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Min. Speed (m.p.h.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
State or Type	—	—	—	—	—	—	—	—	—	—	—	—	—	—
State or Type	—	—	—	—	—	—	—	—	—	—	—	—	—	—
State or Type	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of Vehicles Obs.	159	155	107	64	52	91	116	38	17	4	38	34	—	—
Ave. Speed (m.p.h.)	59.8	56.7	58.4	56.2	62.8	57.0	47.9	48	54.2	53.5	47.1	47.4	—	—
Max. Speed (m.p.h.)	—	—	77	74	73	70	—	—	68	56	62	54	—	—
Min. Speed (m.p.h.)	—	—	—	—	—	—	—	—	—	—	—	—	38	28
State or Type	—	—	39	28	54	39	—	—	39	50	—	—	—	—



TABLE II  
SPEED DATA

Station No. 480 miles of Perryburg on U. S. 31

surface 2 Lane 22! Bituminous  
Tarmac <sup>and</sup> observation

Date Aug. 10, 1959  
Time 10:10 A.M. - 12:45 P.M.

Last Previous Observation (Speed Report No. 66)  
Weather

Date March 30, 1959  
Time 12:35 P.M. - 3:00 P.M.



TABLE

SUGGESTED DATA

Section 36 No. 5 = 1.0 Mile South of Americus on S. R. 25

surface 2 Lane 22! Bituminous  
This observation

Date July 16, 1959  
Time 2:35 P.M.

snow 105

Last previous observation (Speed Report No. 66)  
Weather Cloudy

Date March 18, 1959  
Time 2:00 - 4:15 P.M.

1000



TABLE

## SPRED DATA

VII

Station No 6 = 16 Miles North of Boswell on U. S. 41

surface - 2 lanes - 22' - Portland - Cement - Concrete  
This observation

Date September 1, 1959  
Time 9-11:45 A.M.

Last Previous Observation (Speed report No. 66)  
weather Cloudy

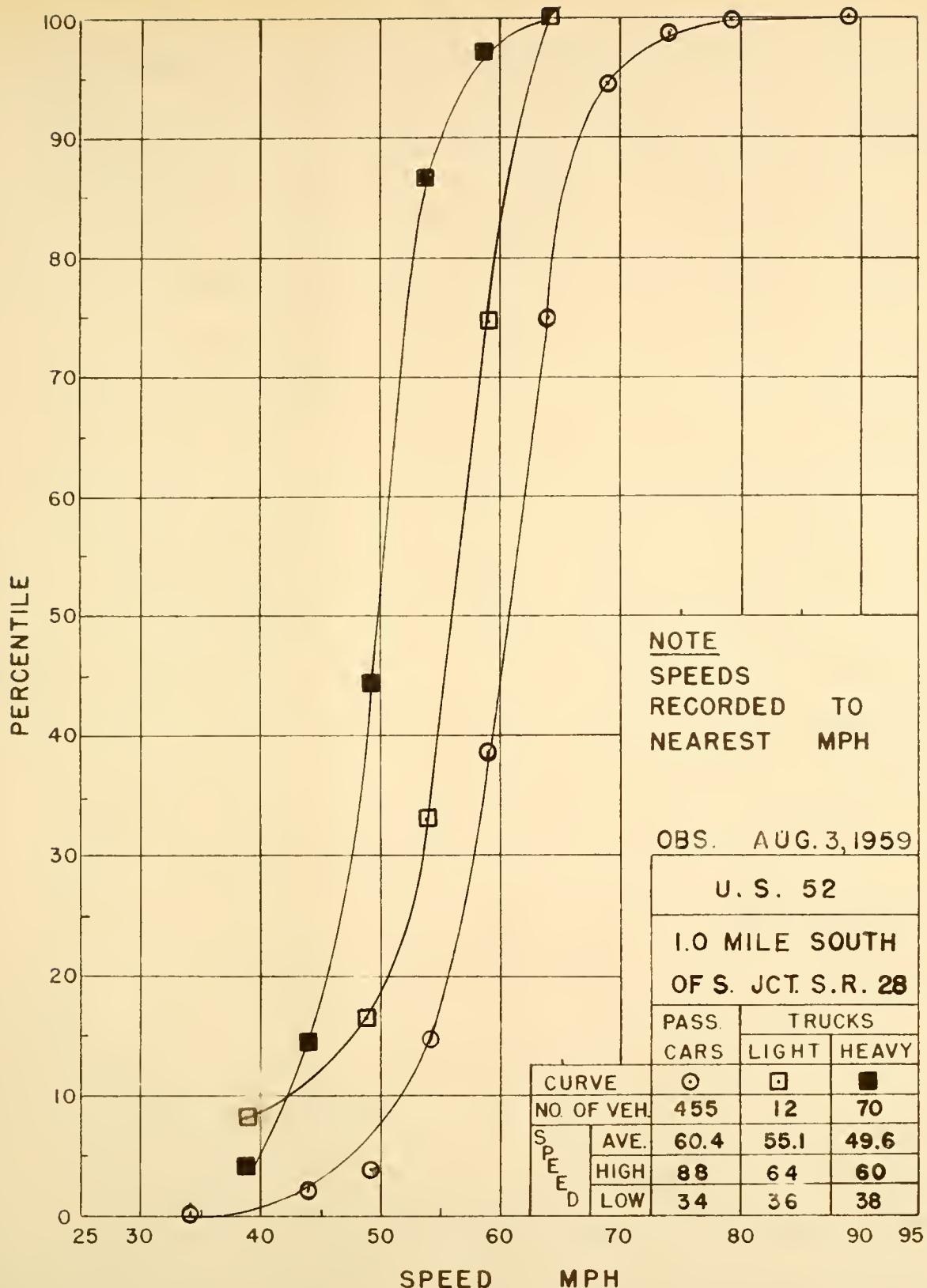
Date March 31, 1959

THUR 9:30 A.M. - 12:30 P.M.

Time 2:30 A.M. = 12.30 A.M.

Time 2:30 A.M. = ~~2:30 A.M.~~







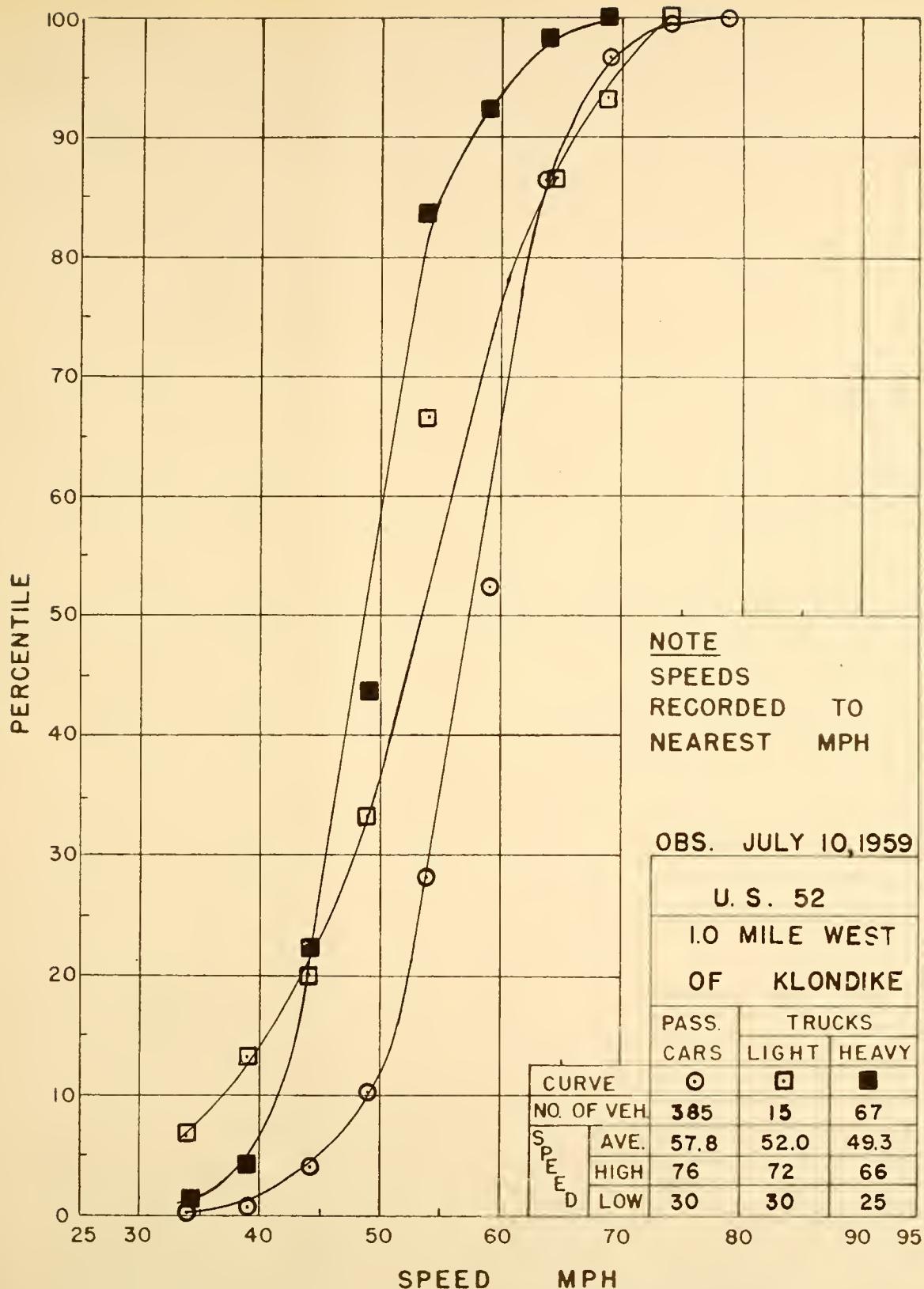


FIGURE 2



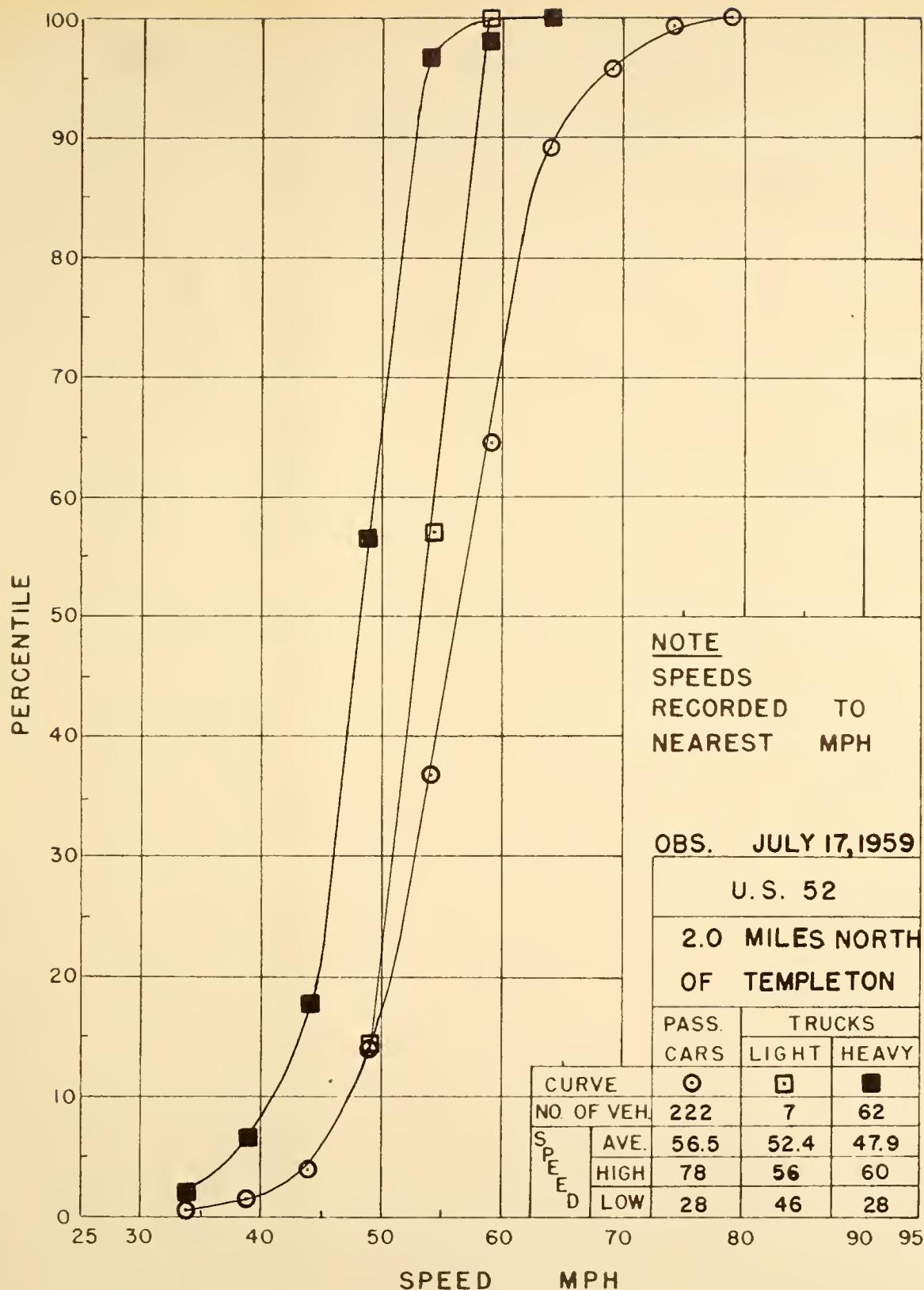


FIGURE 3



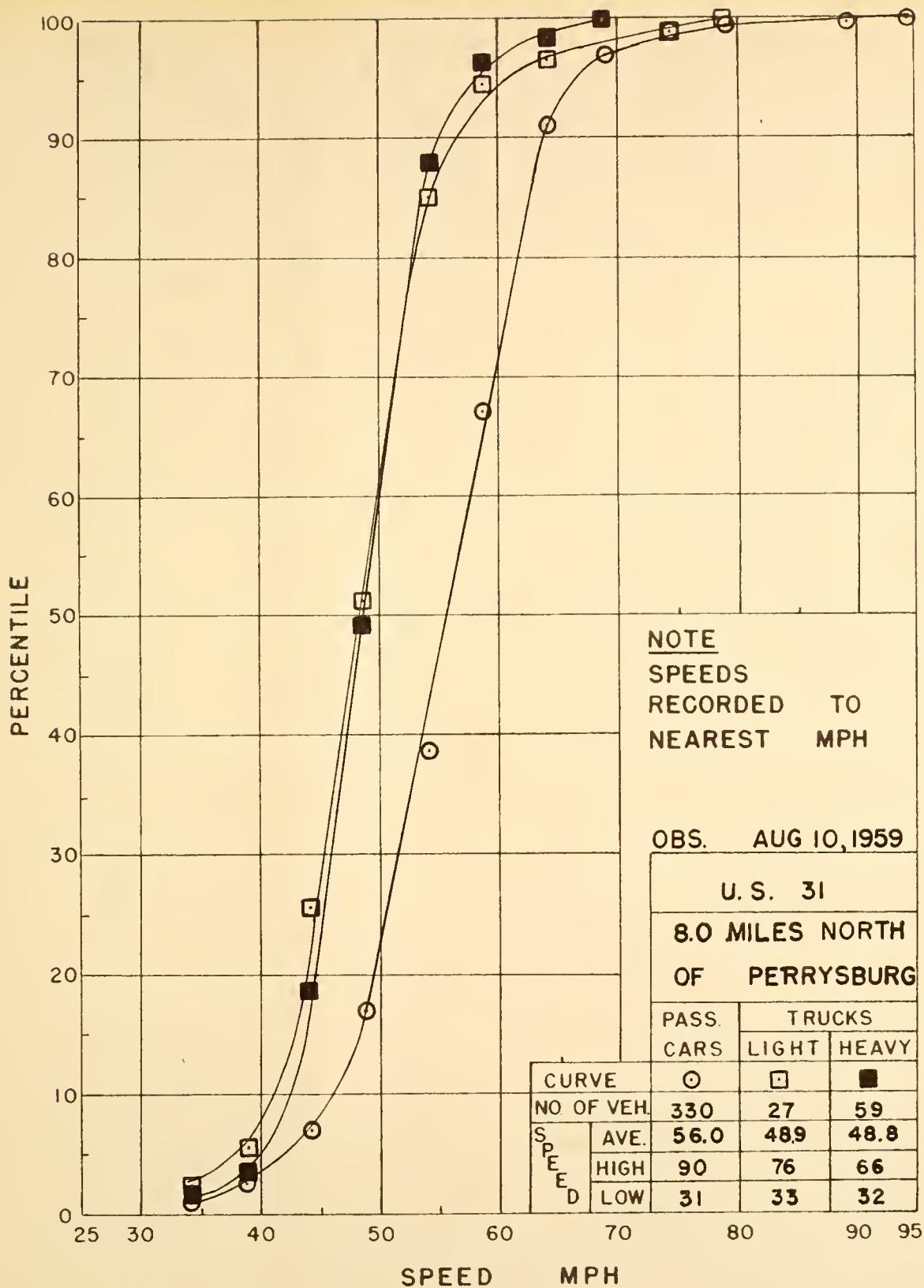


FIGURE 4



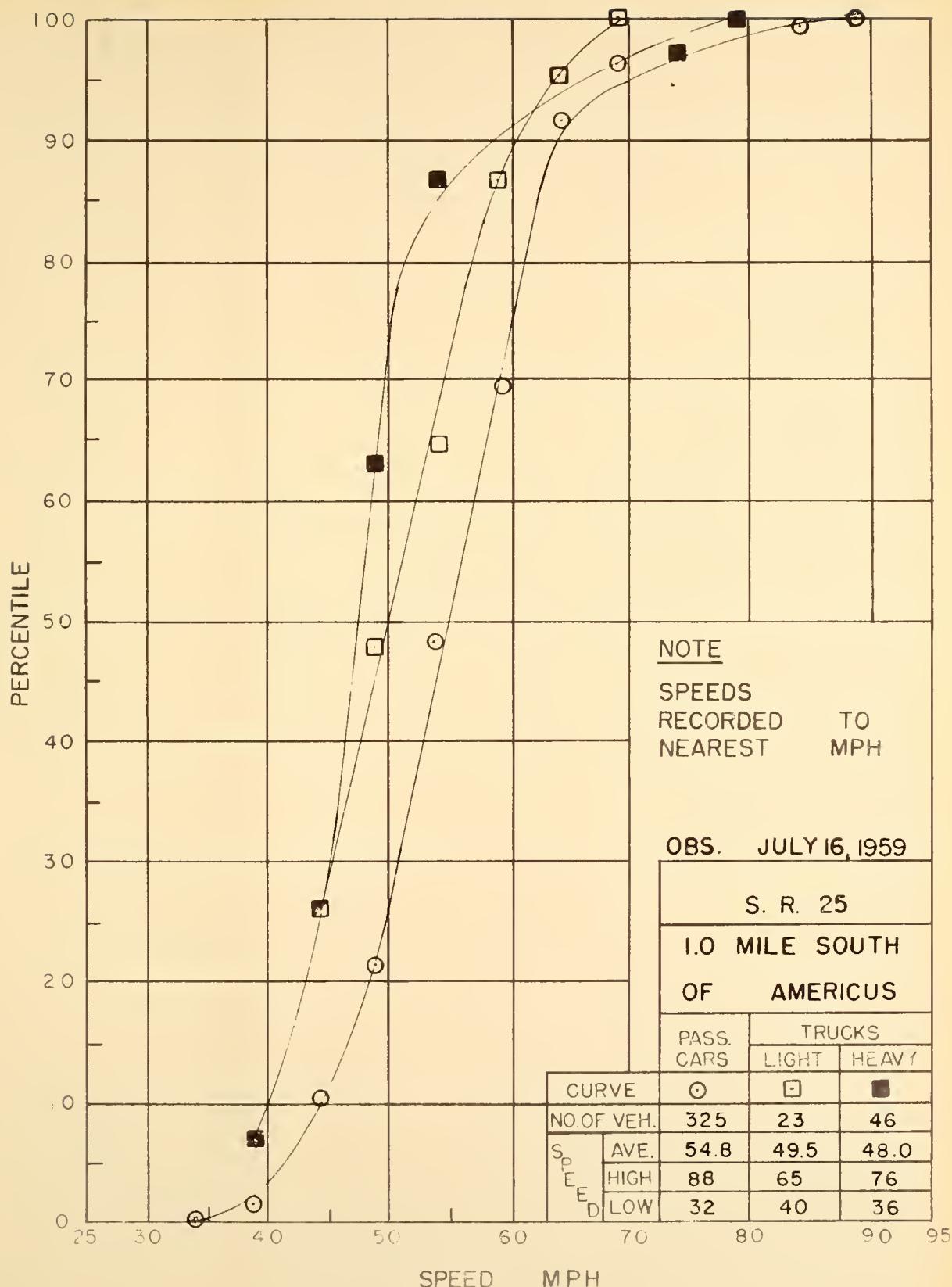


FIGURE 5



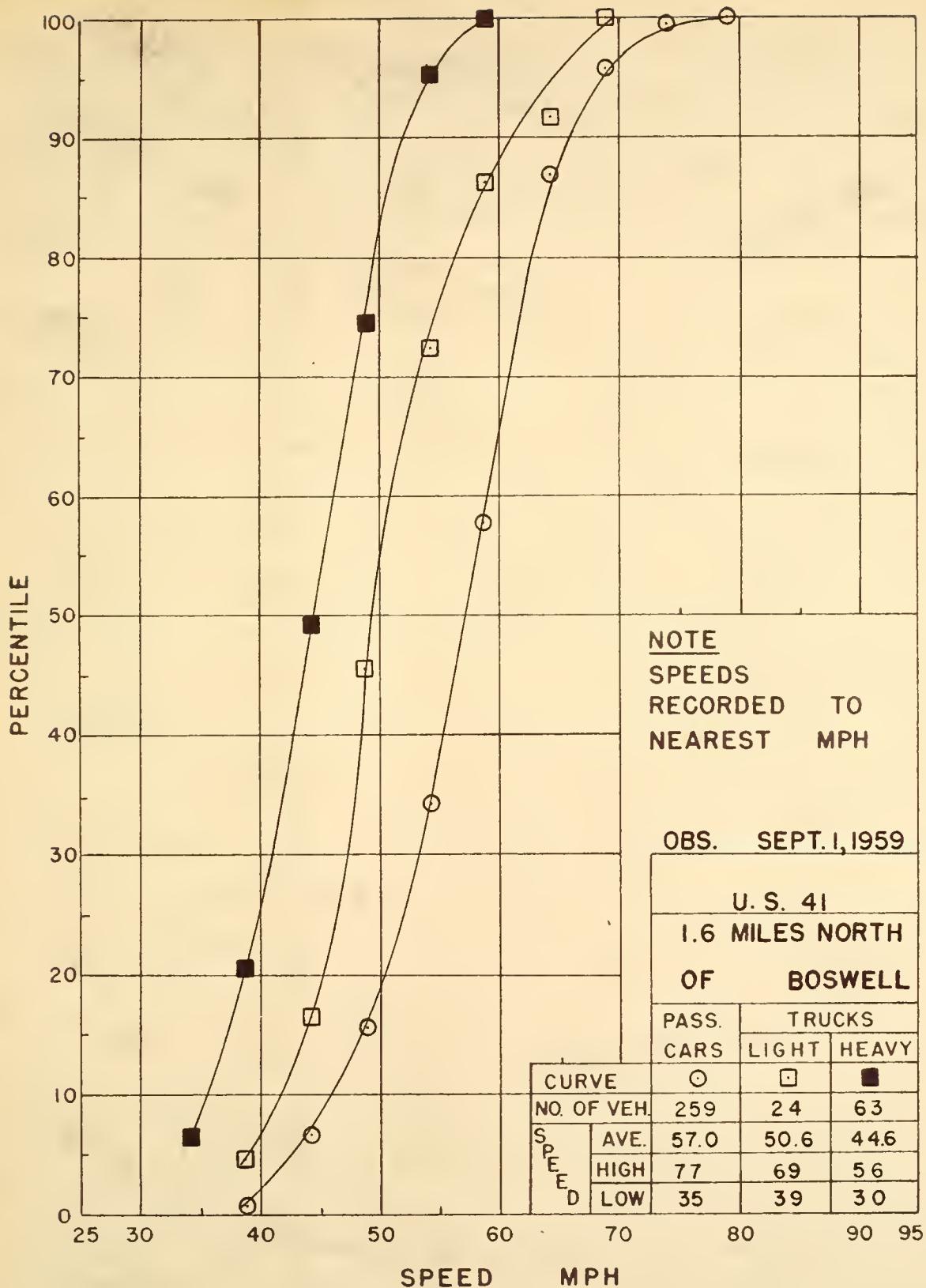


FIGURE 6



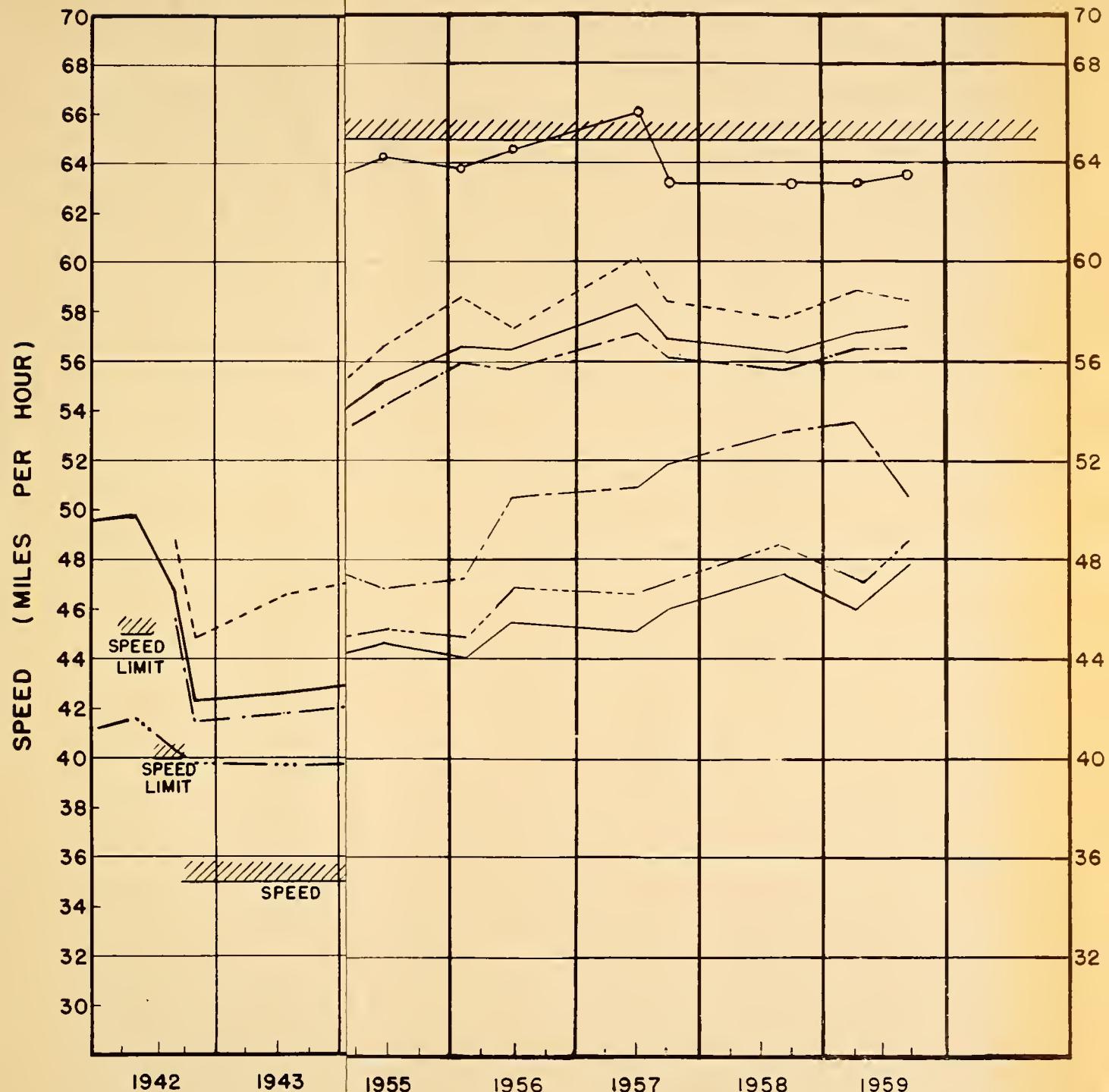
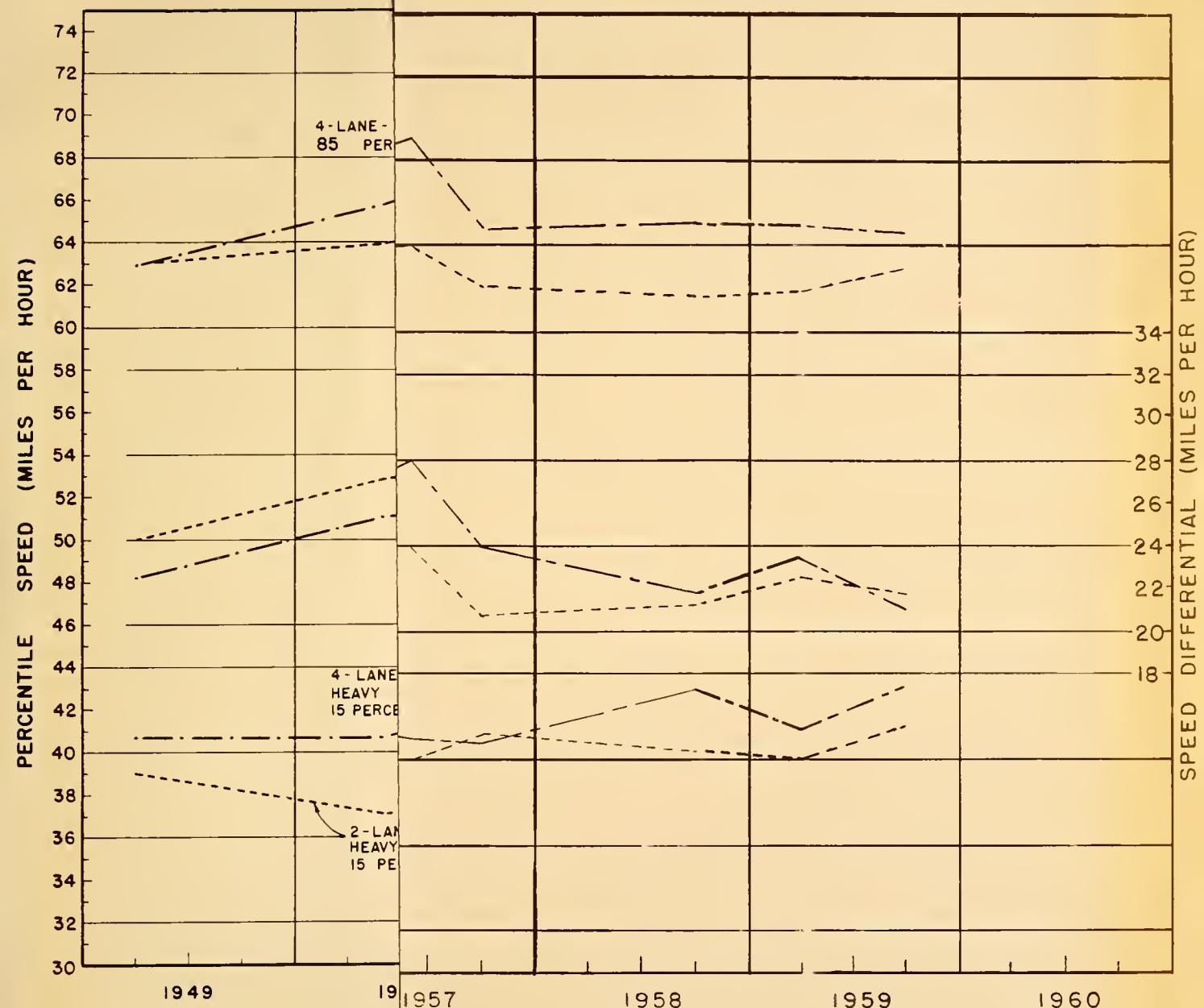


FIG. 7





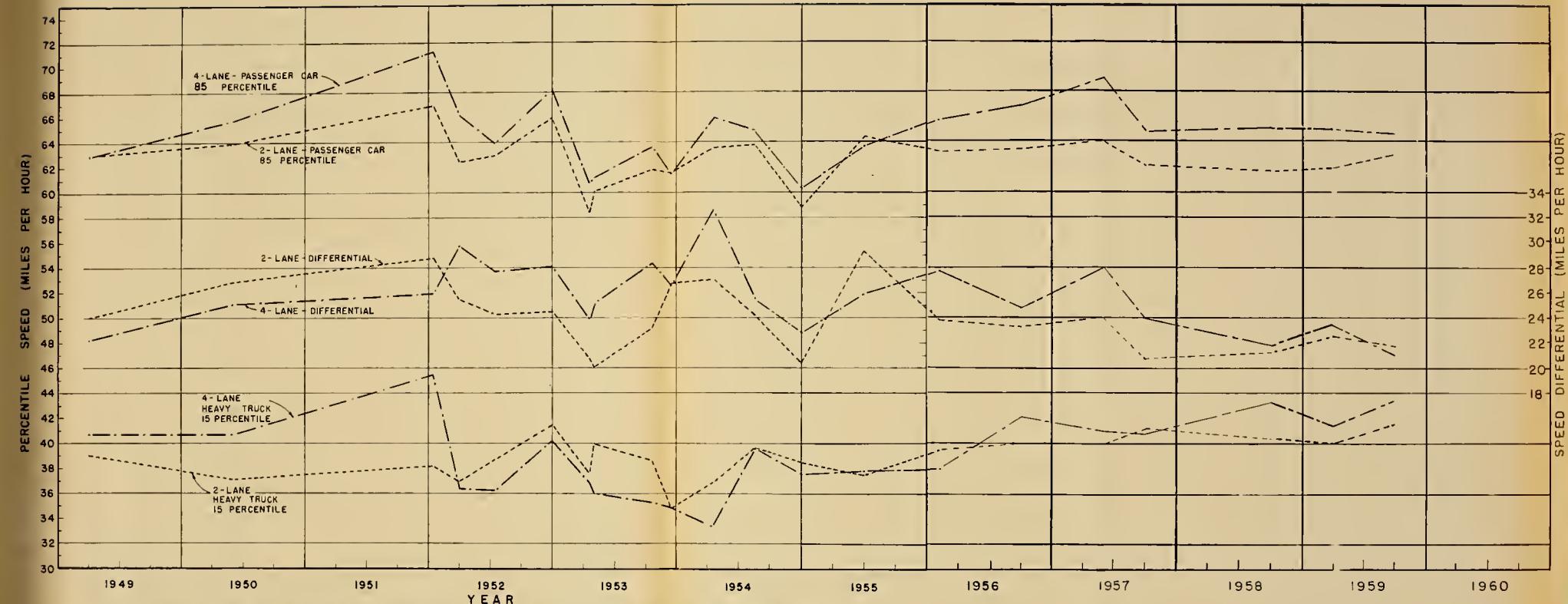




TRENDS IN

FIG. 8





TRENDS IN PERCENTILE SPEEDS AND SPEED DIFFERENTIAL 1949—1960

FIG. 8





